

Prevalence of hypogonadism in young obese males

Authors: Anup Halappanavar^A and Rajeev Pakhetra^B

Background

Ageing, obesity and chronic illness are major factors affecting serum testosterone (T) levels in men. The magnitude of the impact of ageing on serum T levels is well established; for obesity this is less clear.^{1–4} Severe obesity may lead to isolated hypogonadotropic hypogonadism (IHH). Several explanations have been offered to clarify the presence of reduced T levels in obese men. One relates to the technique that is generally employed to measure serum androgen levels, ie measurement of total testosterone (TT) instead of free testosterone (FT). TT represents the sum of FT and T bound to albumin and sex hormone-binding globulin (SHBG). A profound reduction in SHBG level is commonly found in obese men, and this is a major factor causing a decrease in TT.⁴

Measurement of FT levels may provide a more accurate assessment of androgen status than the (usually preferred) measurement of TT in situations where SHBG levels are outside the reference range. However, reference ranges for FT levels are not well established, especially in older men, and some have argued that the measurement of FT levels merely reintroduces age in a covert form.^{5,6} This is a cross-sectional study to estimate prevalence of hypogonadism in young obese males.

Methods

The present study was carried out at Armed Forces Medical College and Command Hospital, Pune, India between October 2017 and August 2019. In this study 147 young obese men participated, and we confirmed low TT levels in 35.4% of participants with a p-value of 0.06.

Results

We studied to see whether there is association between T levels and body mass index (BMI; Table 1). In our study we found no statistical association as the p-value was 0.26 (>0.05).

Discussion

Since only TT was measured for categorising subjects with or without hypogonadism, FT measurement would be a better indicator for the diagnosis of hypogonadism in cases where the TT is borderline low or when SHBG concentrations are abnormal. As such, the study is valuable in the context of the ongoing controversy as to whether T treatment should be

Table 1. Presence of hypogonadism in study participants

Hypogonadism (T <3, LH <9)	Number, n	Percentage, %
Present	35	23.8
Absent	112	76.2
Total	147	100

LH = luteinising hormone; T = serum testosterone.

limited to men with classical hypogonadism, or be considered for appropriately selected men with functional hypogonadism as well. The principal findings are in general agreement with existing literature reporting correlation between levels of T, BMI and constitutional symptoms.^{7–10} However, this has never been shown before in the context of the Indian population. ■

Conflicts of interest

None declared.

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Authors: ^AArmed Forces Medical College, Pune, India; ^BCommand Hospital (SC), Pune, India